Section of Anæsthetics.

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Report on Visit as Official Representative of the Section of Anæsthetics to the First Meeting of the Canadian Society of Anæsthetists at Niagara, and to the Meeting of the American Society of Anæsthetists at Boston, in June, 1921.

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When the Section elected me as the official representative to attend the inaugural meeting of the Canadian Society of Anæsthetists, I promised that on my return I would give a full account of what I had seen and heard.

Upon my arrival at New York on the evening of May 21, I at once got in touch with Dr. Gwathmey, and he arranged for me to accompany him to a private case next morning at 8.30, at a private hospital somewhere near Central Park. This private hospital would correspond to some of our homes in London—such as the Duchess—but the appointments of the theatre, although a great deal better than at some of our homes in London, left much to be desired. The operation was curetting, and the patient, a young lady, had been given $\frac{3}{8}$ gr. morphine, atropine $\frac{1}{100}$ gr., and 300 c.c. of a 4 per cent. solution of magnesium sulphate subcutaneously. The anæsthetic was gas and oxygen, and the anæsthesia was perfect. Instead of using ether, Dr. Gwathmey put 3 minims of paraldehyde into the ether bottle, and showed me the effect of allowing the gas and oxygen to pass over this small quantity of paraldehyde. The breathing deepened, and the patient soon became cyanosed, so the paraldehyde was turned off and more oxygen given. This injection of morphia and 4 per cent. mag. sulph. is largely being used by Gwathmey and others and appears to give excellent results. The morphia is given in three doses, with an interval of fifteen minutes between each, and then fifteen minutes after the last dose the 300 c.c. of mag. sulph. are run into the axilla or groin. I do not know how the effect is produced, but apparently the combination of morphia and mag. sulph. given in this way prolongs and intensifies the action of the morphia. This patient was conscious within three minutes of the end of the operation, and quite well. I was told that she would be put into a darkened room, and would go off to sleep for three or four hours, and awake quite fresh and well.

Next morning I saw a case of synergistic analgesia at the Skin and Cancer Hospital. The operation was for glands in the neck, and the operator Dr. Egger. The patient had had the following preparation: 5 a.m., enema; 6 a.m., chloretone suppos., 20 gr.; 7 a.m., 300 c.c. of 4 per cent. solution of mag. sulph. subcutaneously; morphia sulph., $\frac{3}{8}$ gr., and atropine, $\frac{1}{100}$ gr., hypodermically. *Per rectum:* Ether, 2 oz.; olivè oil, $\frac{1}{2}$ oz.; paraldehyde, 3 dr. The operation was timed for 8 a.m., but did not start until about 8.40 a.m. There was a slight reflex on the skin incision, but after that the patient was quite quiet and did not appear to be in pain, but yet was quite conscious.

Being curious about this, I determined to see some more of these cases, so next day I returned to this Skin and Cancer Hospital, and saw Dr. Lye-

operating. It was an amputation at the shoulder-joint. The patient was given practically the same as the last, except that the olive oil was raised to 2 oz. When the first incision was made this man began to move his legs; the arm was strapped to the side of the table. He began to groan, so a couple of tubes were passed into his post-nasal space, and ether vapour delivered this way by motor. Very little ether was used, and after three minutes there were no more signs of disturbance. He remained in a perfectly analgesic state, very quiet, and apparently in no discomfort. As soon as the limb was removed from the body I raised the towel from his face, and asked him if he was in pain, and he replied "No," and said he felt well. As soon as the operator and his assistants had stitched him up they told him to sit up, and then they bandaged him.

Another case was one of carcinoma of the jaw. The condition of this patient was not good: he would not stand the anæsthetic at all, probably because he had been kept waiting too long, so that the effect of the combination which had been given him had worn off a good deal. He was given C.E. mixture into his post-nasal space.

That morning I also met Dr. Lumbard, one of the leading anæsthetists in New York. He presented me with what is known as the Lumbard airway (shown).

Dr. Bennett, also one of the leading anæsthetists of New York with whom I had got into touch, asked me to come to the Roosevelt Hospital. There I saw Dr. Erdmann operate on a case of inguinal hernia and excision of the gall-bladder in the same patient, a woman. Dr. Erdmann completed the operation well within forty minutes. Dr. Bennett gave gas and ether with a Bennett inhaler; I think he practises almost entirely on the teaching of the late Sir Frederic Hewitt. He is one of the few men in New York who use much chloroform.

Afterwards Dr. Bennett took me down to the main theatre of the Roosevelt Hospital, where we found gas and oxygen anæsthesia in course of being given by one of the interns for a case of diverticulitis, and they were using simply two cylinders attached to the table; it was one of the best gas and oxygen anæsthesias I have seen. This anæsthesia very much impressed Dr. Bennett, because he is one of those who never take part in discussions on anæsthesia, and never writes anything, neither does he attend meetings; he contents himself with gas, ether and chloroform. He had never given gas and oxygen in his life, and he did not realize that such good results could be obtained.

The next case was one of glands in the neck. The anæsthetic was gas, oxygen and ether, followed by ether post-nasally by means of tubes, and very fine anæsthesia it was. The machine (a Connell) appeared to be very efficient. Next morning there was an operation for tonsils and adenoids, in a doctor's child. I do not know the name of the surgeon who operated. The child was given gas, ether, and chloroform in a Junker's inhaler of the antiquated pattern, with the straight little bottle of the type which exists in old hospitals to-day. The anæsthesia was very good, and I saw, for the first time, that the blood was sucked out of the throat by means of a pump, with the use of which I was much struck.

From that case I went to the Haarlem Hospital on the other side of the City, in the Black quarter, to see Dr. Lumbard demonstrate his method of giving ethyl chloride, and saw five or six tonsil and adenoid cases operated upon there. The method was carried out by means of a Yankauer mask, covered with several layers of gauze, on to which Dr. Lumbard sprays ethyl chloride until the child begins to get confused and cannot pronounce numbers

properly. Directly that happens, he takes the tin of ether and pours it on fairly fast, and as soon as the child's breathing deepens and becomes stertorous, he covers over the whole apparatus with a sheet of rubber, with a hole in it the size of a shilling. That converts what has been the open method into a partially closed method, and he then pours on more ether. The patient is wheeled into the theatre, where one of the interns takes charge. The intern has a suction machine; he attaches one of the tubes of the pump to his gag, and ether is blown into the post-nasal space, and blood is sucked out by the pump. I saw this done in five or six cases, and they all did well. Subsequently I saw that this pump was used almost everywhere that I went where throat cases were dealt with, and before I left I bought this little pump and tried it for myself (shown). It is compact and is very useful for private work. It does not make very much noise when it is switched on; you can attach the sucker to this bottle, and then all the blood is sucked into it and the patient does not swallow any. On the other side you have a bottle into which you can put any sort of mixture, and it is delivered by this other tube. Care must be taken not to let the sucker become choked up; the bottle must not be allowed to get too full, and the sucker must be flushed through periodically. Once my machine would not work and I found that this tiny valve was choked with blood-clot, which necessitated taking the whole machine down and freeing it from blood-clot.

That same morning I went over the Haarlem Hospital, which is a very fine building. There I saw the largest case of hydrocephalus I have ever seen; it must have measured fully 36 in. in circumference.

We left New York for Niagara and the Congress started next day at 9.30 a.m. My views on the various subjects under discussion were asked for, and the strain of listening to and discussing papers from 9.30 to 1.30, and from 2.30 to 5 p.m., was rather severe. The papers as a whole attained a very high standard, but the amount of statistical material and the frequent recurrence of percentage valuations and quantities were surprising. Indeed a small clinical paper by Dr. Ross, of Winnipeg, was a welcome change from the others.

The value of taking the blood-pressure throughout the operation was ably insisted on by Dr. McKesson, and I found that a great many men regularly took blood-pressure readings throughout a long case, holding that they thus obtained a very valuable index of the patient's condition, and that by keeping the chart they were able to prognosticate the occurrence of shock far earlier than by the other clinical signs. Moreover, they assured me that in a very large proportion of cases if the blood-pressure remained low for half-an-hour, and even though the patients left the table alive, nearly all died within a few days. This was a very important point, and I subsequently found that these anæsthetic charts were actually used and carefully compiled. (Chart shown on screen.)

The following is the description sent me by Dr. Bourne of what he calls "Third Degree Shock":—

BLOOD-PRESSURE INTERPRETATIONS IN TERMS OF CIRCULATORY DEPRESSION.

"First degree circulatory depression is that in which there is a 15 per cent. increase in pulse-rate without change in blood-pressure, or a 10 per cent. decrease in blood-pressure without a decrease in pulse-rate.

"Second degree is that of increase of 25 per cent. pulse-rate along with a 10 to 25 per cent. decrease in blood-pressure.

"Third degree, which may be known as shock definitely, is that in which the pulse-rate is 100 or more and ascending, accompanied by a rapidly falling blood-pressure

reaching that of 80 mm. of mercury systolic and 20 pulse-pressure or less. This is commonly known as the McKesson interpretation of the practical application of blood-pressure findings, and I have found it very practical, so much so, that the anæsthetist can warn the surgeon of oncoming shock with much finer detail than by simply observing the quality of the pulse by the sense of touch. For example: with the onset of second degree circulatory depression as graphically represented on a chart, one can be on the close look-out for its approach towards third degree depression and then it is that you definitely warn your surgeon that the patient is being shocked. If this third degree depression remains for much longer than fifteen to twenty minutes, it seems to me almost absolutely prognostic that that patient will surely die.

"I also find that in taking frequent blood-pressure readings one concentrates more on what one is doing. That is to say, one seems to have the situation better in hand than otherwise."

The consensus of opinion at this Congress was in favour of gas and oxygen, or gas, oxygen and ether as the anæsthetic of choice; failing that, open ether, or ethyl chloride and ether. Only once did I hear chloroform extolled, and that was at Boston, by a doctor practising in some far-off place where it was not easy or convenient to obtain gas and oxygen.

During the conference I was honoured by my appointment to the honorary chairmanship of one of the sessions. In the course of the Chairman's Address I alluded to the recent work of Dr. Mackenzie Wallis and Dr. Hewer on ethanesal; this aroused much interest, and my remarks on this subject had to be repeated subsequently before the Nose and Throat Section of the Ontario Medical Association.

I had not intended to go to Boston, as I wanted to see the work of the Mayo Clinic; but as I was assured that all I would see there would be open ether, I decided to go on to Boston.

The morning after my arrival at Boston I was taken by Dr. Hapgood—a leading anæsthetist there—to the Massachusetts General Hospital, where I saw Dr. Tobey operating on tonsils. He operates with the patient in a sitting posture. The anæsthetic given by a nurse was gas and oxygen, followed by ether given by a pump and suction apparatus, which I have mentioned before. Here I observed a very fine type of gag, which gave a better exposure of the tonsils than I had ever seen before, and which combined spatula and gag in one instrument. I subsequently bought one of these gags, and they are now obtainable here in London.

We next went on to the Boston City Hospital, and I saw anæsthetics given by Dr. Richardson, also for tonsil operations. Here open ether was given in the sitting posture. Dr. Richardson said he usually gave gas and oxygen first, but that his machine for doing this was temporarily out of order. He did not use the sucker, but in order to get rid of the blood the head was pushed forward directly the tonsils had been taken out. Here the anæsthesia was maintained by nasal tubes and the ether blower.

We went into another theatre in this building to see Dr. McKesson carry out his method of secondary saturation. He anæsthetized a young woman who was to have her knee opened. She had no preparation at all. McKesson began to get her under, and I noticed that her face was getting a curious gray colour, and that her breathing was becoming shallower, with a little prolonged expiration. Suddenly I heard a noise in the machine, and I realized Dr. McKesson was giving oxygen under considerable pressure, so much so, that the patient's cheeks were blown out beneath the facepiece. Gradually she regained her colour, and he said, "That is primary saturation." As soon as she became pink, he proceeded to saturate her a second time, and the same

process was gone through. I must admit that the anæsthesia was very fine afterwards; he obtained good relaxation with it. I doubt whether we have a machine in this country which would be capable of giving oxygen under the pressure he delivered it. I asked him subsequently whether this was a method one could teach students. He was perfectly candid about it; he said "No, it is a method for the expert, and for the expert only." He added, "You can do it perfectly well if you want to; I have done it for twelve years, and I believe in it."

After these demonstrations I attended a dinner of the American Medical Editors, where I met Dr. Henry O. Marcy, who was 86 years old. He had been a pupil of Lister's, and when he heard I came from St. Bartholomew's Hospital he said that years ago he was going round with the late Sir James Paget, and Paget asked him to show them how to give ether—they had had an accident under chloroform—and as a result he gave the first ether that had ever been administered at St. Bartholomew's. At that dinner I was asked to speak, and the subject was that of qualified anæsthetists or unqualified anæsthetists and the teaching of anæsthetics.

On the final day of the Congress at Boston, and directly following my paper, the following resolution was proposed and carried: "That the thanks of those in attendance at this meeting be extended to the Royal Society of Medicine, of England, for having sent to this meeting an official representative in the person of Dr. H. E. G. Boyle."

I next proceeded to Toronto and the day after my arrival I went over the Toronto General Hospital, which is the best hospital building I have ever seen. Attached to the hospital is a block of 150 beds, with three operating theatres; this block is reserved for private patients of the staff. Here it was that I saw most of the anæsthetic work in Toronto. Dr. Johnston, as head of the anæsthetic staff, has a wonderfully arranged service. He has eight assistants, and he so arranges their times in the theatres that they all have a chance of showing the various surgeons how good is their work. Johnston himself only gives anæsthetics in the non-paying part when there is some case of unusual difficulty or danger.

The private anæsthetic work in Toronto is run on ideal lines: the anæsthetist goes to the hospital at about 8 or 8.30 a.m., has every convenience at hand, administers anæsthetics to the cases under operation, and the rest of the day is at his disposal. It is only occasionally that the anæsthetists have to take out their own apparatus, and then only to private houses, or to outlying districts.

In Toronto Dr. Johnston uses gas oxygen and ether, open ether, and occasionally C.E. Most of his assistants do the same. I saw one of them, however, using Dr. Shipway's apparatus. The anæsthesia in Toronto is of a high standard, and Dr. Johnston has an able first assistant in Dr. Tom Hanley.

I rather think that before long the University of Toronto will give a lead to the world in establishing a Chair of Anæsthetics.

My next visit was to Montreal where I got through much work in a very short time. Dr. Bourne showed me some work he was doing at the Western Hospital. He was giving gas and oxygen, and intratracheal ether for some tonsil enucleation cases; it is the custom in Montreal to use that method for throat work. The next case, at my suggestion, he did with endopharyngeal ether.

Next morning at 8 o'clock I went to the Victoria Hospital and saw Dr. Howell

giving open ether for a gall-bladder case, and taking blood-pressure readings all the time. His chart showing the blood-pressure, respiration, pulse, colour and state of the pupils was very instructive. I also saw Dr. Armstrong giving gas and oxygen for a case of piles, and another case of glands in the neck in which ether was being given post-nasally by a blower. The course of this case was not good as there was much blueness and salivation. At the Maternity Hospital I saw Dr. Bourne give gas and oxygen for a Cæsarean section, and again the blood-pressure chart was in evidence.

I next visited the General Hospital, where I found that the staff were very keen on spinal anæsthesia for genito-urinary work. Dr. Hepburn, the anæsthetist, appeared incredulous when I told him of some of the spinal work in London, and was frankly so when I alluded to patients being placed in the Trendelenburg position under stovaine analgesia.

On returning to New York I saw two more interesting cases. The first at the Presbyterian Hospital was that of a Wertheim operation in a woman aged 56. The preparation was as follows: 7.30 a.m., chloretone suppos., 15 gr.; subpectorally—mag. sulph., 4 per cent. = 400 c.c.; novocaine, 1 per cent. = 30 c.c. This takes twenty minutes to give. 8.15 a.m., morph. sulph., $\frac{2}{15}$ gr.; 8.30 a.m., morph. sulph., $\frac{2}{15}$ gr.; 8.45 a.m., morph. sulph. $\frac{2}{15}$ gr. The anæsthetic was administered by a nurse anæsthetist, who gave gas and oxygen, but as there was some straining ether was added for five minutes; after that gas and oxygen alone was given, and the anæsthesia appeared to be perfect for the next hour, when I left. I was told that the operation would probably take three hours.

The last case I saw was at the Skin and Cancer Hospital—that of an amputation of the breast in a woman aged 57, Dr. Egger operating. The preparation here was: Over night, two soap and water enemata; 7 a.m., tap water enema; 7.30 a.m., chloretone suppos., 15 gr.; 8 a.m., subpectorally—morph. sulph., $\frac{3}{8}$ gr.; atropine, $\frac{1}{100}$ gr.; novocaine, tablet "A"; mag. sulph. 4 per cent. = 450 c.c.; 8.10 a.m., per rectum: ether, 3 oz.; ol. oil, 1 oz.; paraldehyde, 4 dr. In this case some ether had to be added by means of nasal tubes and blower.

One or two defects in medical ethics need mention. Both in the United States and Canada the unqualified nurse-anæsthetist continues to flourish, though the anæsthetists proper of both countries are trying to confine the duty of administrating anæsthetics to properly qualified medical men and women. I found a custom operative, both in the case of institutions and individuals, of employing a nurse-anæsthetist at a stated fee and then of exploiting the nurse by making money out of her work—a true example of "sweated labour." I further found that at some places they had a qualified anæsthetist at a fixed salary, but that the institution charged fees for his services in the private block, and made money out of him in this way. Neither of these practices appealed to me.

I found that, on the whole, fees for giving anæsthetics were higher there than on this side of the Atlantic, and that some of the men were making a very good income indeed. Certainly the ease and comfort with which the anæsthetic work was conducted in a place like Toronto made one envious to a degree.

My thanks are due to you for having selected me to represent you at those Congresses, thus enabling me to become acquainted with a body of men and women whose keenness for work is only excelled by their charm and hospitality.